DOCKET FILE COPY ORIGINAL

RECEIVED
AUG 27 2001
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Petition of WorldCom, Inc. Pursuant To Section 252 (e)(5) of the Communications Act for Expedited Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes With Verizon Virginia, Inc., and for Expedited Arbitration	)	CC Docket No. 00-218
In the Matter of Petition of Cox Virginia Telecom, Inc. Pursuant to Section 252 (e)(5) of the Communications Act for Preemption Of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia, Inc. and for Arbitration	)	CC Docket No. 00-249
In the Matter of Petition of AT&T Communications Virginia Inc., Pursuant to Section 252 (e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia Corporate Commission Regarding Interconnection Disputes with Verizon Virginia, Inc.	)	CC Docket No. 00-251

PANEL REPLY TESTIMONY

ON BEHALF OF AT&T AND WORLDCOM, INC.

ON NON-RECURRING COSTS AND ADVANCED DATA SERVICES

PUBLIC VERSION

AUGUST 27, 2001

TABLE OF CONTENTS

I. INTRODUCTION AND SUMMARY 1

II. VERIZON'S NON-RECURRING COST ANALYSIS DOES NOT COMPLY WITH TELRIC. 5

A. VERIZON'S FORWARD-LOOKING NETWORK ASSUMPTION IS FLAWED. 9

B. VERIZON'S INAPPROPRIATE INCLUSION OF RECURRING COSTS IN ITS PROPOSED NON-RECURRING CHARGES ERECTS SIGNIFICANT BARRIERS TO ENTRY 19

C. FIELD INSTALLATION COSTS ARE MORE APPROPRIATELY RECOVERED THROUGH RECURRING CHARGES. 24

D. VERIZON'S NON-RECURRING COSTS FOR SERVICE ORDERING INCLUDE EXCESSIVE LEVELS OF FALLOUT THAT DO NOT REFLECT EFFICIENT, FORWARD-LOOKING OSS AND IMPROPERLY INCLUDE COSTS THAT CLECS DO NOT CAUSE. 30

E. THE "COORDINATION" ACTIVITIES OF THE RCCC WORLDGROUP DEMONSTRATE THE INEFFICIENCY OF VERIZON'S USE OF MANUAL LABOR INSTEAD OF MECHANIZED PROCESSES 39

F. VERIZON'S NON-RECURRING COSTS IN THE PROVISIONING STAGE ALSO INCLUDE EXCESSIVE COSTS FOR MANUAL INTERVENTION THAT DO NOT REFLECT FORWARD-LOOKING ASSUMPTIONS AND IMPROPERLY ATTRIBUTE COSTS TO CLECS. 46

G. VERIZON'S PROPOSAL TO CHARGE FOR ADDITIONAL MANUAL PROCESSING WHEN A COMPETITOR ORDERS MULTIPLE ELEMENTS ON A SINGLE SERVICE ORDER IS NOT FORWARD-LOOKING 55

H. VERIZON HAS MODELED INEFFICIENT PROCESSES FOR UNE-P SERVICE ORDERING AND PROVISIONING 58

I. VERIZON'S PROPOSAL TO CHARGE EXTRA FOR HOTCUTS IS NOT FORWARD-LOOKING. 583

J. VERIZON'S BUNDLING OF DISCONNECT COSTS INTO CONNECT CHARGES VIOLATES COST CAUSATION. 69

III. VERIZON'S WORK-TIME ESTIMATES REFLECT A FAULTY SURVEY-BASED STUDY METHODOLOGY. 74

IV. THE COMMISSION SHOULD REJECT VERIZON'S ANALYSIS OF COSTS FOR LINE SHARING AS EXCESSIVE AND NON-FORWARD-LOOKING....103

A. THE WIDEBAND TEST SYSTEM CHARGE SHOULD BE OPTIONAL....106

B. THE COMMISISON SHOULD HOLD VERIZON TO A STRICT BURDEN OF PROOF IN JUSTIFYING RECOVERY CLAIMS FOR MODIFICATIONS TO ITS OSS IN CONENCTION WITH LIEN SHARING....119

C. VERIZON'S REPORTED PER-LINE AND ORDER RELATED COSTS ARE NOT REASONABLY RELATED TO LINE SHARING AND SHOULD BE REJECTED 123

D. THE COMMISSION SHOULD ASSUME AN EFFICIENT, COST-MINIMIZING SPLITTER CONFIGURATION....126

E. VERIZON'S APPLICATION OF AN EF&I FACTOR TO CHARGES FOR LINE SHARING IS INAPPROPRIATE....129

F. VERIZON'S PROPOSEDL RECURRING LINE-SHARING "ADMIN & SUPPORT" PRICE IS OVERSTATED AND SHOULD NOT BE APPLIED TO "OPTION A"....134

G. VERIZON'S SPLITTER INSTALLATION CHARGE IS EXCESSIVE....141

H. COMPETITORS SHOULD NOT BE FORCED TO PAY TO CORRECT VERIZON'S PROVISIONING PROBLEMS THROUGH ITS PROPOSED COOPERATIVE TESTING CHARGE 143

V. THE COMMISSION SHOULD REJECT VERIZON'S PROPOSED "CONDITIONING" CHARGES 147

A. VERIZON'S PROPOSED "CONDITIONING" CHARGES ARE NOT FORWARD-LOOKING 149

B. VERIZON SUBSTANTIALLY INFLATES LOOP "CONDITIONING" COSTS BY FAILING TO INCORPORATE EFFICIENT ENGINEERING PRACTICES IN ITS COST STUDIES 152

C. VERIZON'S PROPOSED NON-RECURRING CHARGE TO "ADD ISDN ELECTRONICS (REPEATER) IS YET ANOTHER EXAMPLE OF DOUBLE-COUNTING AND EXCESSIVE COSTS. 157

VI. VERIZON'S PROPOSED LOOP "QUALIFICATION" COST ANALYSIS IS INAPPROPRIATE 160

Attachment A: Verizon's Proposed Non-Recurring "Conditioning" Charge Does Not Reflect the Practices that an Efficient Carrier Would Employ to Perform the Tasks Necessary to Remove Load Coils and/or Excessive Bridged Tap

I. INTRODUCTION AND SUMMARY

Q. MS. MURRAY, PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Terry L. Murray. I am President of the consulting firm Murray & Cratty, LLC. My business address is 227 Palm Drive, Piedmont, CA 94610.

Q. MS. MURRAY, HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?

A. Yes, I filed direct testimony on behalf of AT&T Communications of Virginia, Inc.,[1] ("AT&T") and WorldCom, Inc. ("WorldCom"). Exhibit (TLM-1) to that testimony provides a summary of my qualifications and experience. I am also filing concurrently two other pieces of reply testimony, individually on economic and policy issues and, as a member of a panel, on recurring cost issues.

Q. MR. WALSH, PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Richard J. Walsh and my business address is 33 Francis Drive, Hillsborough, New Jersey, 08844. I am presently providing consulting services to AT&T as a Technical Analyst in the Local Services and Access Management (LSAM) / Local Connectivity Cost, Price, and Planning Division. I have also

---

[1] This reply testimony is presented on behalf of AT&T Communications of Virginia, Inc., TCG Virginia, Inc., ACC National Telecom Corp., MediaOne of Virginia and MediaOne Telecommunications of Virginia, Inc. (together, "AT&T").

been retained by WorldCom for the purpose of analyzing and critiquing the non-recurring cost model and rates proposed by Verizon Virginia in this proceeding.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?

A. Yes, I filed direct testimony on behalf of AT&T and WorldCom. My qualifications were included with that testimony.

Q. MR. RIOLO, PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Joseph P. Riolo. I am an independent telecommunications consultant. My business address is 102 Roosevelt Drive, East Norwich, NY 11732.

Q. MR. RIOLO, HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?

A. Yes. I submitted Direct Testimony in this proceeding on behalf of AT&T and WorldCom on July 31, 2001. My qualifications were included as Exhibit JPR-1 to that testimony. I am also filing testimony concurrently as a member of a panel on recurring cost issues.

Q. WHAT IS THE PURPOSE OF YOUR PANEL REPLY TESTIMONY ON NON-RECURRING AND ADVANCED SERVICES COSTS?

A. AT&T and WorldCom have asked us to review and respond to the direct testimony and cost study presentations filed by Verizon Virginia, Inc. ("Verizon VA" or "Verizon"). In particular, we will rebut Verizon's Panel Testimony on Unbundled Network Element and Interconnection Costs ("Verizon Cost Panel

Direct")[2] with respect to non-recurring costs and costs associated with advanced data services. Based on our review:

Verizon's non-recurring cost ("NRC") study produces costs inflated far above Total Element Long Run Incremental Cost ("TELRIC") levels due to a long list of significant flaws, including:

- reliance on Verizon's embedded network architecture instead of a reconstructed forward-looking network;
- failure to assume the most efficient mix of technology;
- inclusion of archaic universal digital loop carrier ("UDLC") technology;
- inclusion of substantial recurring costs;
- inclusion of excessive fallout and manual labor instead of mechanization;
- inclusion of costs not caused by competitive local exchange carriers ("CLECs");
- creation of an elaborately inefficient and complex hotcut process to accomplish a simple migration; and
- bundling of disconnect costs into connect charges.

Moreover, Verizon has employed a faulty survey methodology to estimate the costs of this flawed non-recurring cost construct. Not only is the methodology flawed, but the results of that survey are plainly inconsistent with the real-world experience of

---

[2] The members of Verizon's Cost Panel are Donald Albert, Ralph Curbelo, Joseph (continued)

Mr. Walsh and Mr. Riolo, who have personally managed and/or performed many of the tasks included in Verizon's studies.

We recommend that the Commission reject Verizon's non-recurring cost study and accept the Non-Recurring Cost Model ("NRCM") proposed by AT&T/Worldcom because, as Ms. Murray and Mr. Walsh verified in their direct testimony, the AT&T/WorldCom NRCM properly reflects the manner in which an efficient carrier would provision UNEs over a truly forward-looking network. Moreover, the AT&T/WorldCom NRCM correctly classified recurring vs. non-recurring costs and attributes costs to the cost causer. Verizon's non-recurring cost study lacks all of these desirable properties.

With regard to advanced data services, we recommend that the Commission:

- prohibit Verizon or any its affiliates from providing DSL-based services over fiber facilities until Verizon has in place approved rates, terms and conditions for such services for unaffiliated competitors;

- make CLEC use of Verizon Wideband Testing Systems optional;

- reject Verizon's asserted costs for development and maintenance of OSS for line sharing as unsubstantiated and, in any event, more appropriately recurring costs;

Gansert, Nancy Matt, Louis Minion, Mike Peduto, Gary Sanford, and John White.

- reject Verizon's attempt to use its Two Wire New Initial as and Two Wire New Additional loop costs to generate per line costs for line sharing;
- base line sharing costs on the assumption of most efficient splitter placement;
- reject Verizon's proposed EF&I factor as inappropriate;
- reject Verizon's Administrative & Support charge for Option A and reduce it to $4.05 per month for Option C;
- order Verizon to generate a direct estimate of its splitter installation costs;
- reject the cooperative testing charge as unnecessary;
- reject the proposed line conditioning charges as embedded costs and unreasonably excessive in any event;
- reject the proposed charge to add ISDN electronics as a recurring cost; and
- reject Verizon's loop qualification charges as recurring database development and maintenance cost.

The remainder of our testimony explains the basis for each of these conclusions.

II. VERIZON'S NON-RECURRING COST ANALYSIS DOES NOT COMPLY WITH TELRIC.

Q. DO THE VERIZON NON-RECURRING COST STUDIES THAT YOU REVIEWED COMPLY WITH FORWARD-LOOKING ECONOMIC COST PRINCIPLES?

A. No. Ms. Murray discusses in both her direct testimony and her concurrently filed reply to Drs. Gordon and Shelanski the forward-looking economic cost principles that should apply to a non-recurring cost study. To be consistent with these principles, the non-recurring charges to provision UNEs should reflect forward-looking, efficiently incurred costs in accordance with the requirements set forth by this Commission pursuant to the Telecommunications Act of 1996 (the "Act"). The non-recurring charges should reflect to the greatest extent possible a mechanized, non-manual process, which minimizes costly human intervention. In addition, the non-recurring charges should recover only truly non-recurring costs and not the costs of constructing and maintaining the network, which are properly recovered in Verizon's recurring charges.[3]

In essence, this Commission should set prices based on the costs that an efficient incumbent operating in a competitive environment, using the most efficient technology available today, would incur. Such prices will not force competitors to compensate Verizon for costs stemming from any past or embedded inefficiency. Prices based on efficient, forward-looking costs will encourage Verizon to become more efficient in the provisioning of UNEs and will encourage the development of competition in the local exchange market.

As we discuss in more detail below, Verizon's non-recurring cost analyses include numerous tasks, task times and assumptions that are inconsistent with these forward-looking economic cost principles. At an overall level, Verizon has

---

[3] *Implementation of the Local Competition Provisions in the Telecomms. Act of 1996,* First Report and Order, 11 FCC Rcd. 15499 (1996) (*"Local Competition Order")* at ¶ 746 ("We find that recovering a recurring cost through a nonrecurring charge would be unjust (continued)

not based its non-recurring cost studies on a forward-looking reconstructed network. Instead, the Verizon non-recurring cost studies rely on data pertaining to its existing, embedded processes and its existing, embedded network architectures. For example, Verizon unaccountably presumes an inordinate level of manual intervention at all stages of the ordering and provisioning. Although Verizon applies some "forward-looking adjustments" to current work times and occurrences, such adjustments are not widespread across all work activities, nor do they address the fundamental flaw of relying on data pertaining to existing processes and network architectures, rather than forward-looking processes and network architectures.

In addition, the Verizon non-recurring cost study inappropriately includes fieldwork and other activities that Verizon should have reflected, and in many cases probably did include, in its recurring cost study.

Finally, Verizon's proposed non-recurring charges violate the principle of cost causation and would create barriers to entry, because Verizon has bundled disconnect costs into its connect charges.

For all of these reasons, Verizon's non-recurring cost studies do not comply with this Commission's mandate that "NRCs must be set to "ensure that

---

and unreasonable because it is unlikely that incumbent LECs will be able to calculate properly the present value of recurring costs.")

incumbent LECs do not recover nonrecurring costs twice and that nonrecurring charges are imposed equitably . . ."[4]

Q. HOW IS VERIZON'S NON-RECURRING COST STUDY APPROACH DEFICIENT?

A. For most work activities, surveys of existing work functions and work times associated with those functions provided the baseline for the non-recurring cost study. Verizon's survey methods and procedures were flawed.

Verizon did apply "forward-looking adjustment factors" that, it purports, reflect the benefits of gains in labor productivity and mechanization advancements.[5] According to Verizon's Cost Panel, these adjustment factors represent the frequency with which Verizon expects to perform an activity in the forward-looking period.[6] However, as we discuss further below, Verizon's adjustments do not go far enough. In fact, Verizon's "forward-looking adjustment" factor does not address such basic backward-looking assumptions as having to retype a significant percentage of orders that competitors have already generated in a fully electronic format.

---

[4] *Local Competition First Report and Order* at ¶ 750.

[5] Verizon Cost Panel Direct at 317.

[6] Verizon Cost Panel Direct at 316.

Verizon's flawed survey approach, combined with the *ad hoc* and limited nature of Verizon's forward-looking adjustments, produces a set of non-recurring costs that violate forward-looking cost principles.

Q. ARE VERIZON'S REPORTED WORK TIMES A RELIABLE BASIS FOR CALCULATING NON-RECURRING COSTS?

A. No. Verizon apparently derived its work-time estimates by surveying its employees.[7] Verizon committed numerous errors in survey design, data collection and data processing. These errors contributed to the inflation of Verizon's study results and render those results useless for estimating the cost of efficient activities.

We discuss the inherent flaws in Verizon's survey approach and implementation further in Section III.

A. VERIZON'S FORWARD-LOOKING NETWORK ASSUMPTION IS FLAWED.

Q. HAS VERIZON RELIED ON THE CORRECT FORWARD-LOOKING NETWORK ARCHITECTURE AND TECHNOLOGY MIX TO CALCULATE ITS NON-RECURRING COSTS?

No. As Ms. Murray explains further in her separately filed rebuttal to Drs. Gordon and Shelanski, Verizon has based its non-recurring cost studies upon its existing embedded network, updated only to consider expected changes over a

---

7 Verizon Cost Panel Direct at 311.

three-year planning horizon. Verizon's reliance on actual, existing network equipment, configurations, processes and procedures and actual planned enhancements does not—indeed cannot—satisfy the requirement that the costs used to establish UNE prices, both recurring and non-recurring, must reflect the least-cost, most efficient and forward-looking network and systems currently available.

Furthermore, Verizon readily admits that the network construct it used to model recurring costs is different from the one used to model non-recurring costs. As Ms. Murray explained in her direct testimony and elaborates in her separately filed response to Drs. Gordon and Shelanski, the forward-looking network constructs assumed must be the same for both recurring and non-recurring costs.

Exhibit AT&T/WCOM NRCM-1 is a conceptual diagram of the allegedly forward-looking network architecture on which Verizon has based its non-recurring cost studies. It reflects the physical equipment (*i.e.*, the plant) necessary in a forward-looking environment to produce the loop and port elements.

The local loop network element is defined in 47 C.F.R. § 51.319 as "a transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and an end user customer premises." A local loop is created by the placement of copper cables from the Network Interface Device ("NID") to the Serving Area Interface ("SAI"). At this point, the loop takes one of two available paths to the central office (*e.g.*, through copper feeder or through Digital Loop Carrier ("DLC") over fiber feeder). Within the central office, copper feeder loops will have a termination point on the Main Distribution Frame ("MDF"). Fiber feeder loops enter the central office on digital facilities, where they can be directly connected to the LDS (*i.e.*, IDLC), or converted to analog UDLC facilities having a termination point on the MDF.

AT&T/WCOM NRCM-2 shows the physical connections that are necessary for Verizon's retail (loop & port) services. The forward-looking network would produce two types of ports: analog and digital. Analog ports (like the analog facilities produced by the copper feeder loops and UDLC pairs) will have a termination point on the MDF. It is at this location (the MDF) that cross-wires are placed to connect the loop and the port. Digital ports are connected to digital facilities, which then connect the fiber feeder network to the remote terminal IDLC equipment. Digital loop/port connections are made electronically by the OSS. There is no physical cross-wiring work performed on the MDF. AT&T/WCOM NRCM-3 represents the physical connections that are necessary for interconnecting UNE loops to the CLEC's equipment Carrier/Connecting Facility Assignment ("CFA").

For copper feeder loops, a connection is made at the MDF. For fiber feeder loops, the DS-0 path is redirected to the CLEC's equipment via the OSS. This exhibit shows the two distinct methods of interconnection, one being a physical cross-wire placement connecting the ILEC's cable pair to the CLEC's equipment and the other representing an electronic cross-connect provisioned by the OSS.

AT&T/WCOM NRCM-4 represents the physical connections that Verizon's non-recurring cost study assumes to be necessary for interconnecting loops to the CLEC equipment. Verizon converts the IDLC fiber feeder loops to UDLC so terminations can take place manually at the MDF. The digital loops are not efficiently redirected to the CLEC's equipment, but instead go through a costly bypass conversion to UDLC facilities appearing on the MDF. This type of non-recurring activity is not forward-looking, not least-cost, and does not utilize currently available efficient technology.

Q. DO VERIZON'S NON-RECURRING COST STUDIES REFLECT THE MOST EFFICIENT MIX OF TECHNOLOGY?

A. No, Verizon's non-recurring cost studies assume out-moded and inefficient technology. As Ms. Murray explains in her concurrently filed reply to Drs. Gordon and Shelanski, this assumed network architecture is even less forward-looking than the architecture modeled in Verizon's recurring cost studies. Thus, the network assumed in Verizon's non-recurring studies is even further from the truly forward-looking network architecture modeled in the Synthesis Model that AT&T and WorldCom have presented in this arbitration and confirmed by Verizon's own engineering guidelines. One key example of this is Verizon's assumption regarding DLC. Verizon indicates that [because] "the network used to determine *non-recurring* costs should reflect the actual costs that will be incurred in the real forward-looking network, the NRC studies assume that the network will consist of 26% IDLC and 74% copper/UDLC."[8] This is far lower than the forward-looking percentage of IDLC would be, even as Verizon has assumed for its recurring study.

Q. WHAT IS VERIZON'S JUSTIFICATION FOR THE INEFFICIENT LEVELS OF UDLC IT ASSUMED?

A. Verizon incorrectly claims that a forward-looking network must include UDLC to provision both unbundled loops and certain kinds of services. To the contrary, both ISDN and DDS services *can* be provisioned using fiber-fed IDLC, as the AT&T/WorldCom Recurring Cost Panel explains in its concurrently filed testimony. In fact, ISDN services are more efficiently provisioned on IDLC (GR-303), requiring only one port, as opposed to three ports on UDLC. Loops can also be provisioned digitally, and this should be the case if Verizon assigns facilities utilizing fiber feeder.

Q. PLEASE EXPLAIN WHY UDLC IS AN OUTMODED AND INEFFICIENT TECHNOLOGY.

A. During the 1970s, the telephone companies deployed UDLC to serve additional demand and provide loops to customers located quite a distance from the central office. At that time, the remote terminal DLC equipment converted analog signals from the customer's telephone set to digital signals, which traveled over facilities

---

[8] Verizon Cost Panel Direct at 326.

to the central office DLC equipment. In the central office, the digital signal was converted back to analog and the loop had an appearance on the MDF. Conversion to analog was necessary because switches and switch ports at this time were all analog. Therefore, at the MDF, the telephone company would connect the cable pair to the office equipment, thus giving the customer service.

When digital switches became available, it was no longer necessary to convert DLC back to analog facilities at the central office. The remote DLC could be directly integrated into the digital switch. The switches and remote terminals both spoke this new digital language. This improvement also permitted elimination of costly central office DLC equipment. The development of IDLC significantly improved the quality of service, because it eliminated the cumbersome "analog to digital and back to analog" conversion, which seriously impaired the quality of service, particularly for modem users.

The non-recurring costs modeled by Verizon reflect the use of actual embedded UDLC, ignoring the fact that IDLC is the efficient forward-looking technology to use for fiber loops. In addition, Verizon intends to use exclusively UDLC for unbundling fiber loops, and has chosen this interconnection methodology to generate the highest possible non-recurring costs, which result from the need for additional manual central office MDF wiring. This outmoded and inefficient technology is a prime example of the inflated non-recurring costs generated by Verizon's improper network assumptions. This anti-competitive impact is readily apparent in the inefficient migration process Verizon proposes for customers currently served by fiber-fed loops, which we discuss below.

Q. HOW HAS VERIZON MODELED MIGRATION FOR CUSTOMERS CURRENTLY SERVED BY IDLC?

A. Verizon has assumed that end users with IDLC facilities must be converted to analog UDLC/copper facilities when migrating their service to a CLEC using the ILEC's loop. This is absolutely not true—there is no technical limitation preventing this type of migration; therefore Verizon should have modeled the situation in which a customer remains on IDLC fiber feeder and is electronically migrated to the CLEC digital facilities.

Verizon has done this by changing the characteristics of loop element by first requiring that it must contain a physical point of interconnection on physical arrays called "distribution frames"[9] and then by justifying that the only loops that have a physical appearance on the MDF is a two-wire "analog" loop. This allows Verizon to force CLECs into its backward-looking provisioning methodology which requires that all unbundling must take place at the Central Office MDF to support the physical point of interconnection.

47 C.F.R. § 51.319(a) (i) provides for no such classification of the loop element being designated as analog or having to have a physical appearance at the

[9] Verizon Cost Panel Direct at 78.

MDF. The terminology *"or its equivalent"* in 47 C.F.R. § 51.319(a) (i) recognizes the technology difference in loops.

As an article titled "The Virtual RDT, Key to Unbundling the Local Exchange" concluded:

> Providing Concentrated Access using the Multihosting or Virtual RDT concept is the essence of local access. It provides access to subscriber lines without the need for dedicated special access circuits for each subscriber's line. It decouples switching and software based services (which can be provided from a remote host) from functions, which can be performed by standardized commodity transmission products available from many vendors. Concentrated Access can provide the key which unlocks the Local Exchange Network to open and fair access to all.[10]

This paper builds on a presentation by John Eaves and Paul Zimmerman of Bellcore (now Telcordia) titled "Impact of SONET on the Evolution of Telecommunications Network Architectures and Switched-Service Capabilities." Their paper showed how the capabilities of IDLC systems conforming to Bellcore TR-303[11] can be used to provide sophisticated switched services to any subscriber in a LATA from a small number of host switches which dates back to 1992.

A more recent report from Telcordia Technologies titled "Telcordia Notes on the Networks" also demonstrates this technical feasibility. Telcordia

---

[10] http://www.sonetech.com/conferences/nfoec-vrdt.html#r1.

[11] Integrated Digital Loop Carrier System Generic Requirements, Objectives, and Interface, TR-NWT-000303, Issue 2, Bell Communications Research, December 1992.

recognizes eight options for IDLC unbundling, citing the advantages and disadvantages of each:

> The most critical factor associated with unbundling a customer loop is the type of loop facility that the customer is already utilizing for service, such as all copper, UDLC system, or IDLC system.
>
> - If the customer is receiving service over all-copper facilities, the transfer of the whole loop is straightforward as indicated in Figure 12-32. The ILEC removes the central office connection to its switch and places a jumper from the MDF to the meet point at the CLEC's collocation cage. There is no need to rewire the outside plant or visit the customer premises.
>
> - If the customer is receiving service over a UDLC system, the transfer of the whole loop can be straightforward as shown in Figure 12-3.2. The ILEC removes the central office connection to its switch and places a jumper from the MDF to the meet point at the CLEC's collocation cage. Again, there is no need to rewire the outside plant or visit the customer premises.
>
> - However, if the customer is served by an IDLC system, the loop is digitally transmitted to the ILEC switch. There are a variety of "technically feasible" options available to the ILEC to unbundle the loop. Each ILEC has established its own set of approved unbundling options along with the corresponding methods, procedures, and practices needed for implementing these options. Numerous unbundling options are possible because many of today's RDTs support multiple kinds of interfaces such as: GR-303, TR-08, UDLC, and D4 DS1.
>
> - Also, some RDTs are capable of supporting multiple GR-303 Interface Groups, thereby

permitting a single RDT to connect to multiple switches.[12]

Q. HOW DOES VERIZON'S APPROACH OVERSTATE COSTS?

A. The bypass method chosen by Verizon requires central office and outside plant rewiring to complete the new circuit from the MDF to the customer. This is truly inefficient, costly and not forward-looking. The migration process should involve merely an electronic cross-connect instruction to effectively move the customer's IDLC channel to the CLEC's digital facilities. It does not require any manual activities by the CO Frame technicians.

All other CO Frame tasks would be eliminated if Verizon adopted an efficient hot-cut process. These include Task #15, "Load WFA tickets, check status of order activity, and report completion of order/frame work for WFA tickets (NDSUP and NDSUT) to the RCCC." Verizon has also included, with Tasks #17 & #18, a total of ***BEGIN VERIZON PROPRIETARY ***** ******* END VERIZON PROPRIETARY***** of labor for field installation technicians when in fact no Field Installation work is necessary. For the "2 Wire Hotcut Initial," the existing loop will be reused. Any Field Installation cost is sheer fantasy.

---

12 Telcordia Technologies Special Report, SR-2275, Issue 4, October 2000, Section 12.13.2.1 Whole Loop Unbundling Configurations.

B. VERIZON'S INAPPROPRIATE INCLUSION OF RECURRING COSTS IN ITS PROPOSED NON-RECURRING CHARGES ERECTS SIGNIFICANT BARRIERS TO ENTRY.

Q. HOW SHOULD THE COMMISSION DETERMINE WHICH FORWARD-LOOKING COSTS SHOULD BE RECOVERED IN NON-RECURRING PRICES RATHER THAN THOSE THAT SHOULD BE RECOVERED IN RECURRING PRICES?

A. As Ms. Murray explained in her direct testimony,[13] the key distinguishing characteristic between the costs that should be recovered in recurring charges and those that can be—but do not have to be—recovered in non-recurring charges is whether the cost, once incurred, is for facilities that can be reused to provide service to a subsequent customer without change. If so, Verizon should recover the cost through recurring charges, not non-recurring charges. This test excludes any capital costs from non-recurring charges, because all capital items could be used to supply service to another customer, and excludes as well all of the labor costs of installing that plant, for the same reason. Once plant has been installed to serve one customer, another customer at the same customer premises could reuse that plant at no additional cost for that plant.

This leaves the costs of performing the transaction as the costs that can be recovered in non-recurring charges for unbundled network elements. These are the costs of actually performing the tasks of preordering, ordering and provisioning.

Q. IS THERE ANY OTHER GUIDE THAT THE COMMISSION CAN USE TO DETERMINE THE RECURRING VS. NON-RECURRING NATURE OF THE COSTS INCLUDED IN VERIZON'S NON-RECURRING COST STUDIES?

A. Yes. The Commission can distinguish between "temporary" changes to the network that Verizon implements for the sole use of the requesting CLEC and "permanent" changes to the network that Verizon keeps in place to benefit future users, including its own retail operations. The process of interconnection is a temporary condition that is bound by the life of the service or UNE. The activities used to produce this interconnection, such as the "temporary" connections at interconnection points within the network, are the one-time non-recurring costs. This "temporary" vs. "permanent" distinction provides a good rule of thumb for determining the proper cost causer. To comport with cost causation principles, a non-recurring cost study must exclude all costs of constructing and maintaining the elements of the forward-looking network, which are recurring costs, and capture only the cost of temporary connections to the CLEC (*i.e.*, the transaction costs).

Q. DO VERIZON'S NON-RECURRING COST STUDIES REFLECT THE RECOVERY OF CAPITAL COSTS ON A NON-RECURRING BASIS?

A. Yes. Our review of Verizon's non-recurring studies reveals that Verizon has included capital equipment costs in some of its non-recurring costs. For example,

---

[13] Murray Direct at 28-31.

a substantial portion of Verizon's proposed non-recurring "Add Electronics (Repeater)" charge consists of the capital cost for the repeater (ISDN loop extension equipment) itself.[14]

Furthermore, it is clear that Verizon has included in its non-recurring cost study many costs that are usually capitalized, such as the labor cost to install plant that is reusable, which we discuss in the next answer.

Q. DO VERIZON'S NON-RECURRING COST STUDIES REFLECT THE RECOVERY OF COSTS FOR FACILITIES THAT ARE REUSABLE?

A. Yes. The reusability test that Ms. Murray advocated in her direct testimony excludes from non-recurring costs the cost of the labor used to install facilities that can be reused to provide service to a subsequent customer, because once the plant has been installed to serve one customer, another customer at the premises could reuse that plant at no additional cost for that plant. Verizon should have included (and perhaps did include) these field-work costs in its recurring cost

---

14 Verizon's Cost Panel acknowledges that the electronics are investments, but contends that their costs should nonetheless be recovered through a non-recurring charge. Verizon Cost Panel Direct at 163. Verizon's cost panel claims that its proposed recovery of ISDN extension equipment investment through a non-recurring charge "addresses the fact that there is likely to be considerable customer churn in the market for advanced data services" and therefore the possibility that this churn would lead to "under-recovery of these costs." This argument has any merit. Apart from the fact that the cost of investment in copper extension electronics has no place in a forward-looking cost study at all, Verizon's proposed charge of $1,758.58 would effectively close off all competition for ISDN over longer loops entirely.

study.[15] However, Verizon has included in its non-recurring cost studies the labor costs to install plant that is reusable.

For example, Verizon has included the labor costs to place a cross-connect at the service area interface in its non-recurring loop costs. The connection remains in place when a service disconnects; Verizon can reuse that connection.

Another example is the labor cost included in Verizon's proposed non-recurring charge for loop conditioning. The facilities that become available as the result of DSL loop conditioning are not returned to their prior state once the competitor ceases their use. They become available to Verizon for assignment to another competitor or to its own (or its affiliate's) retail customers.[16]

Q. IS THE CROSS CONNECT AT THE SERVICE AREA INTERFACE A TEMPORARY CONNECTION?

A. No. The cross-wire that are placed at the service area interface (or Field Distribution Interface (FDI) between the feeder and the distribution cables supports the management of network. They are "left-in-place" when services disconnect, to support new incoming request. In addition, these FDI cross-wires are placed and rearranged during plant construction, the cost of which would be reflected through the EF&I expenses of the recurring rates. In addition these cross-

---

15 The recurring cost analysis presented by Mr. Pitkin captures capital costs and the labor costs to install them.

16 As we explain later in this testimony, Verizon has also inappropriately included costs directly related to operation and upkeep of its network, such as repair or maintenance of its outside plant, in its non-recurring cost studies.